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(1) 
$$SiO_2 + 2H_2O$$
  $\rightleftharpoons$   $Si(OH)_4$   $Si(ONa)_4$  Alkali NaOH

(2) 
$$Si(OH)_4 + OH \rightleftharpoons HSiO_3 + 2H_2O$$

(3) 
$$2HSiO_3 \Leftrightarrow SiO_2 + 2H_2O$$

(4) 
$$HSiO_3 + OH$$
  $\rightleftharpoons$   $SiO_3 + H_2O$ 

Fig. 1

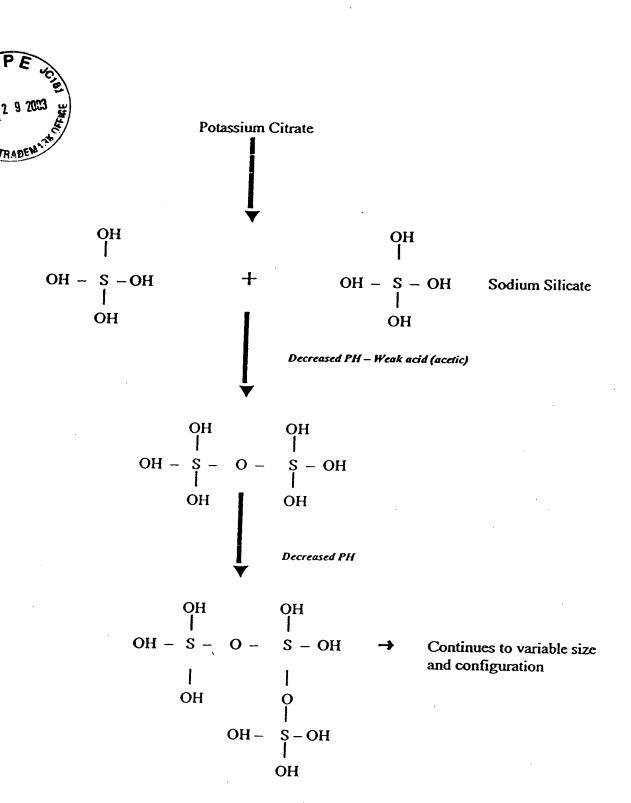
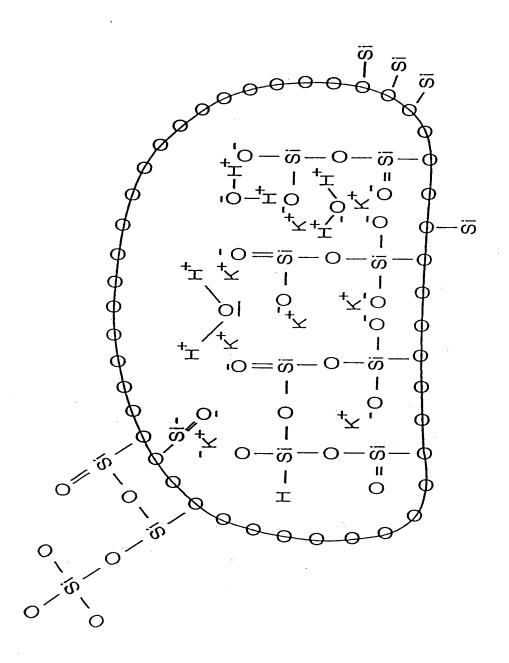


Fig. 2







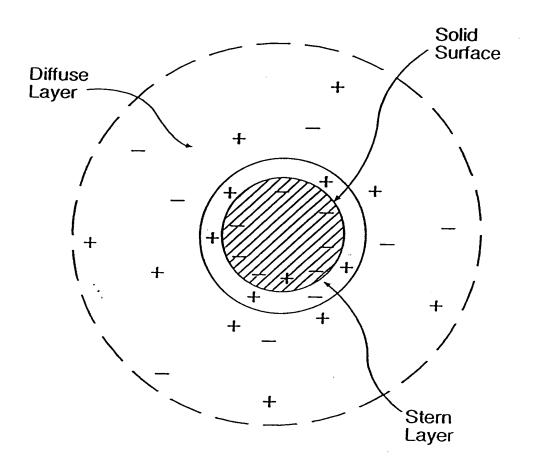


FIG. 4



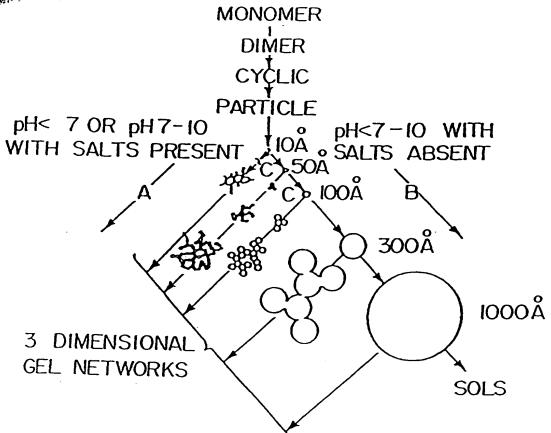
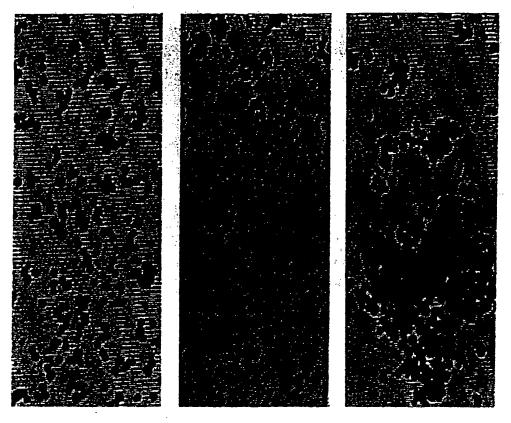


FIG. 5



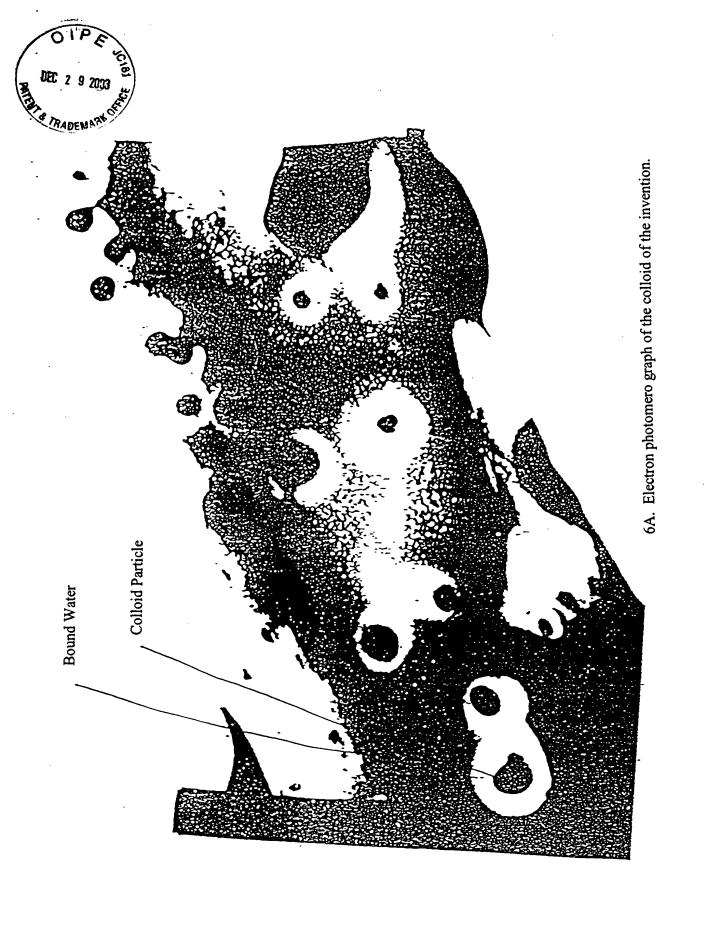
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## Colloid Chemistry of Silica and Silicates

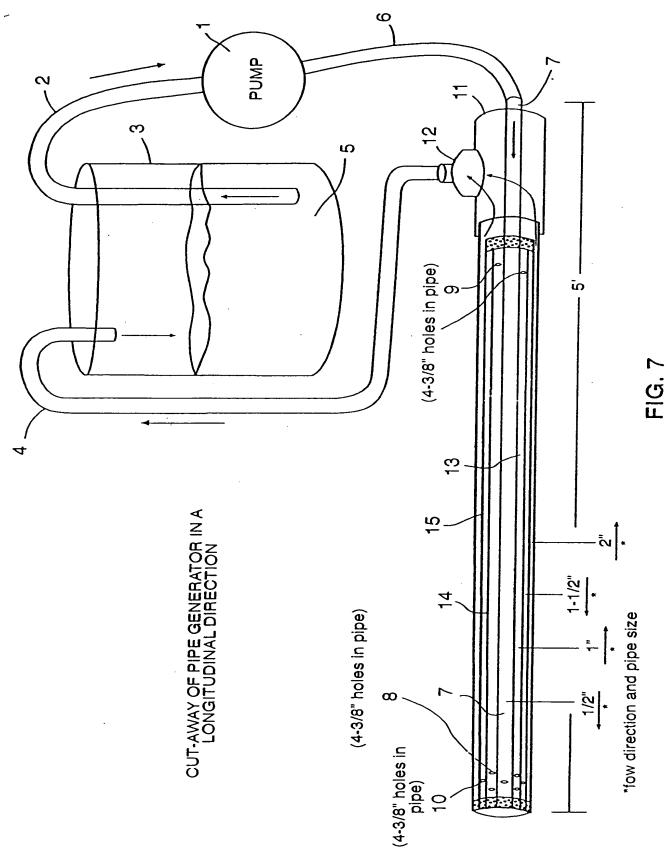


Electron micrographs showing stages of aggregation of 35 millimicron silica particles: left, colloidal aggregates; center, aggregates approaching colloidal size; right, supercolloidal aggregates or precipitate.

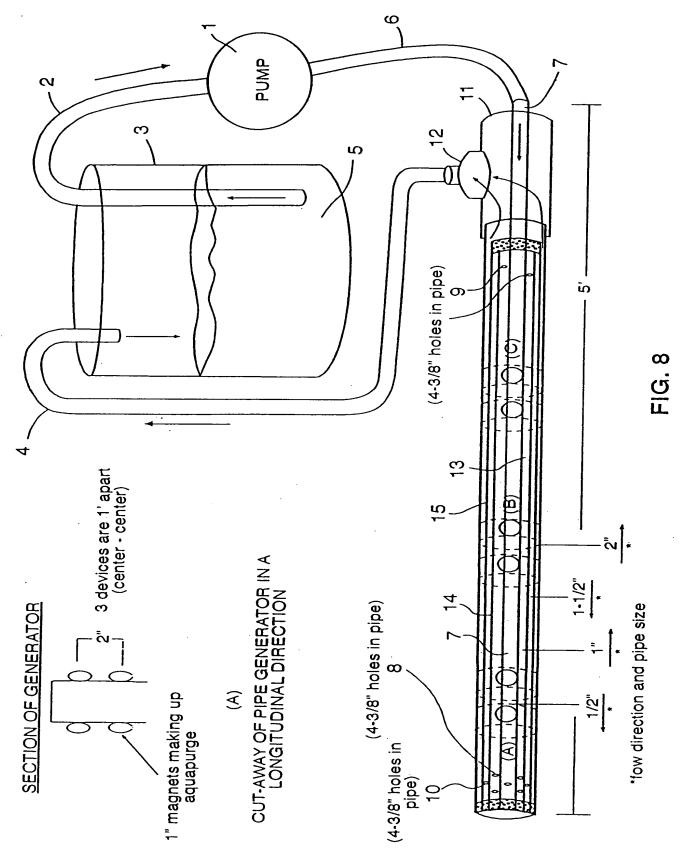
FIG. 6





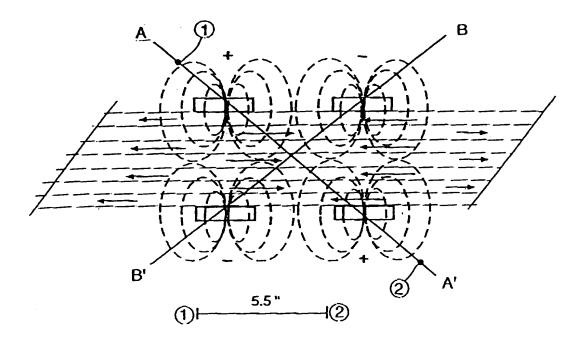








Cross sectional view of counter current generator of the invention with lines A-A' and B-B' noted for measurement purposes.



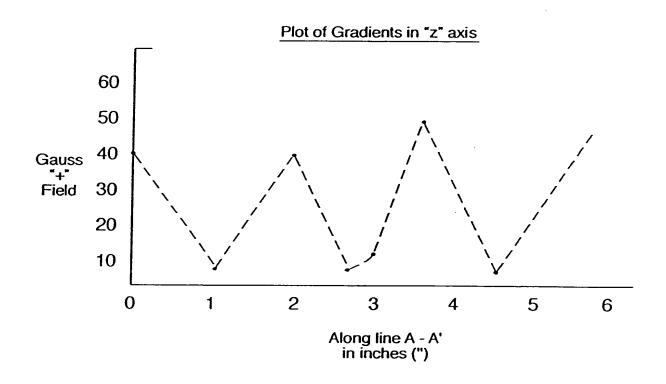


FIG. 9



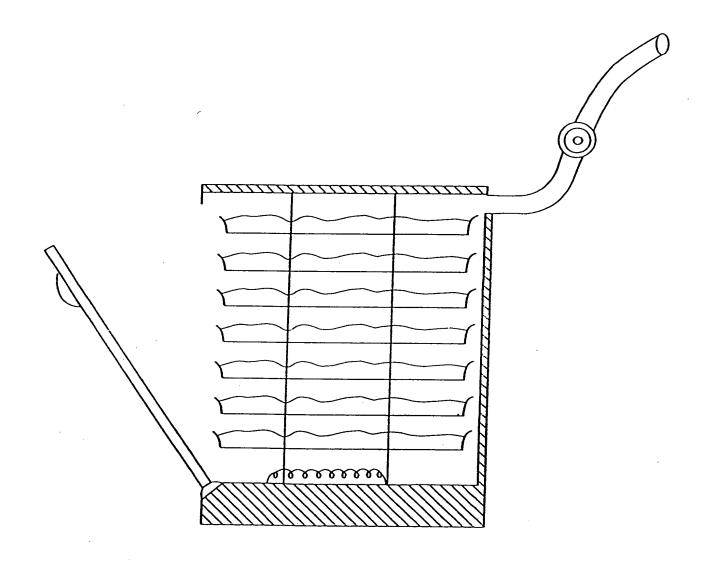


FIG. 10



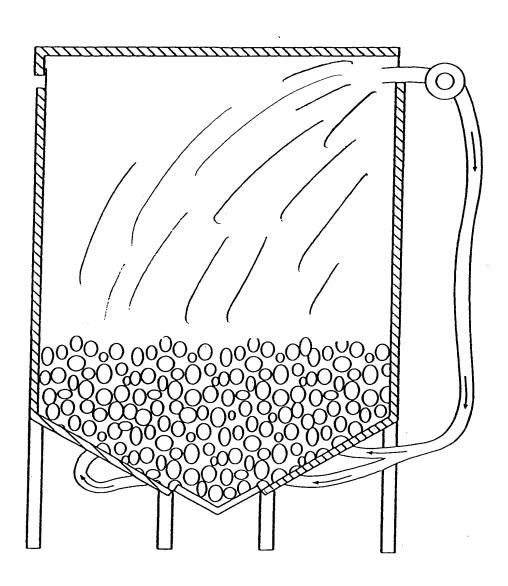


FIG. 11

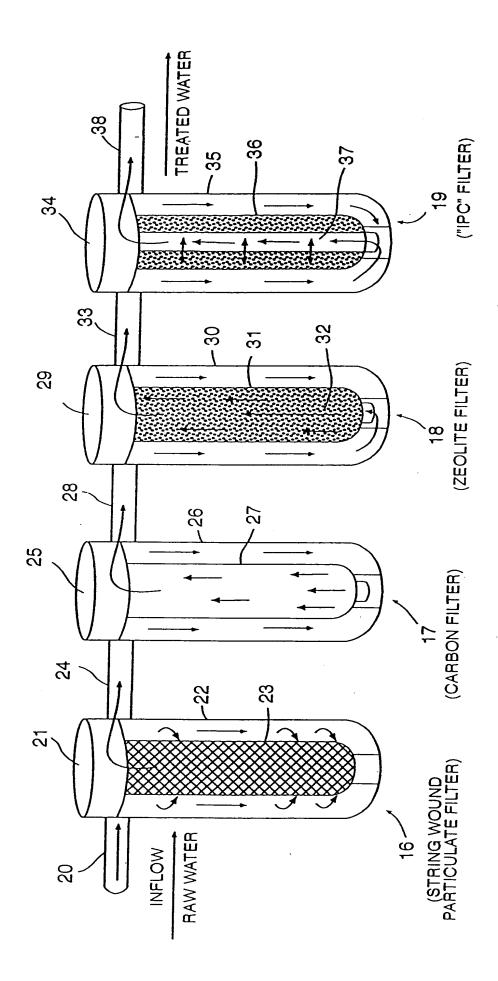


FIG. 12

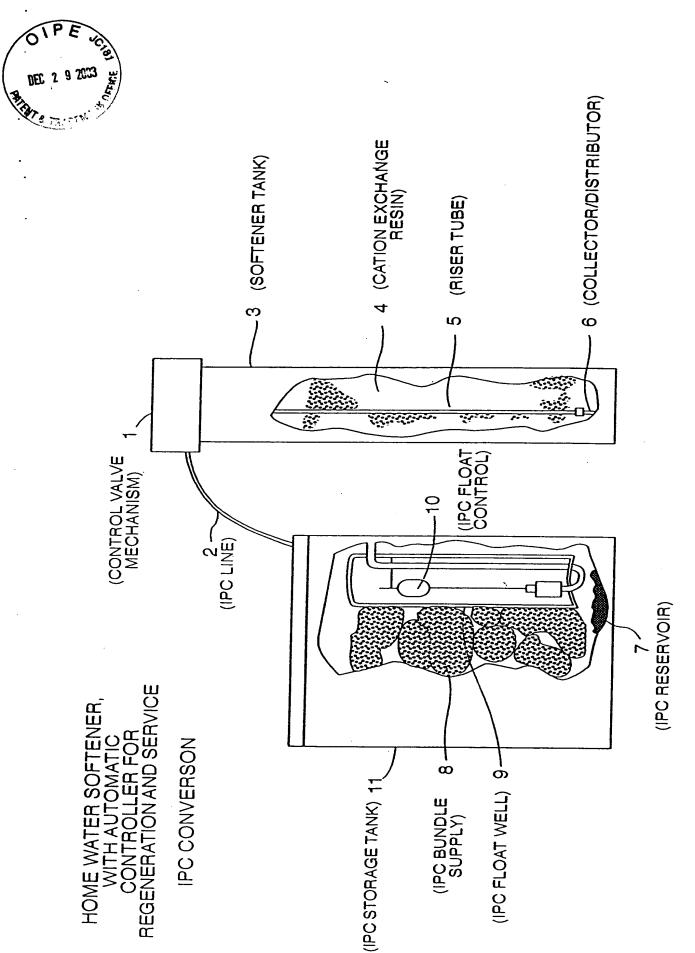


FIG. 14

PE

FIG. 15



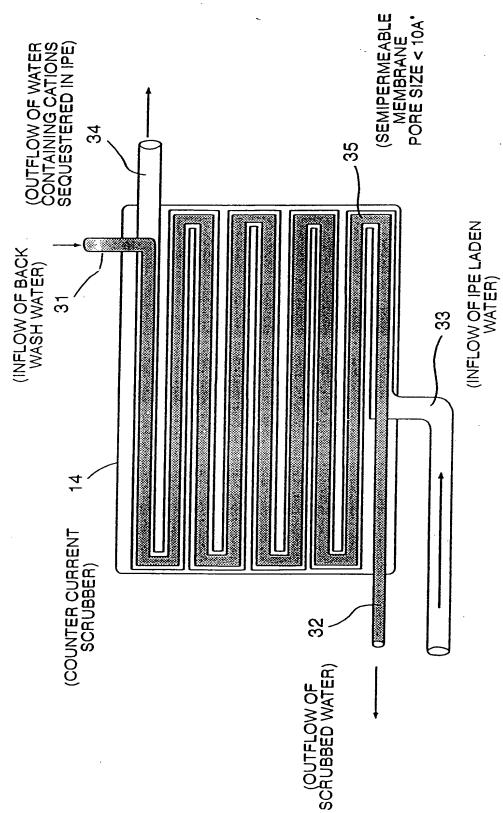
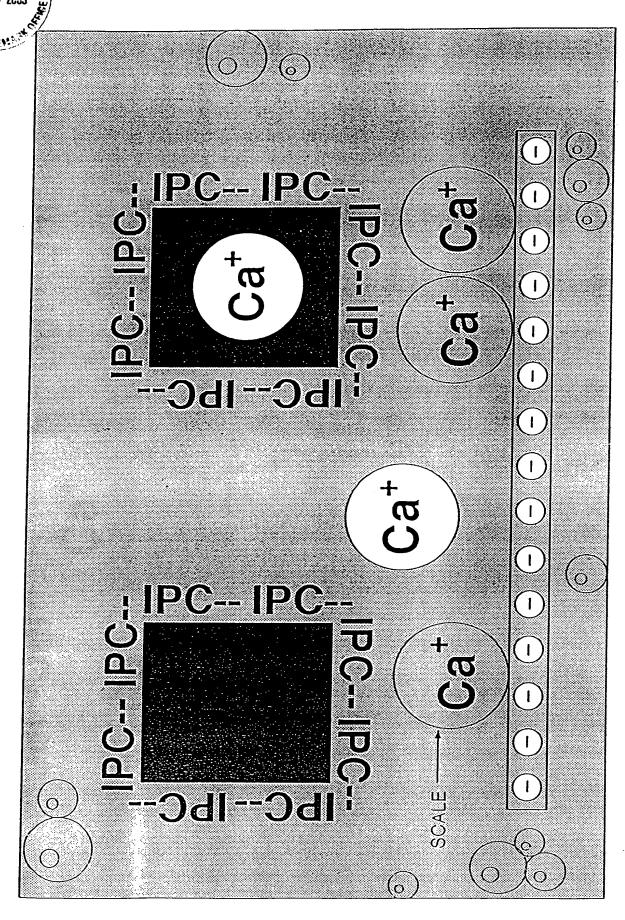
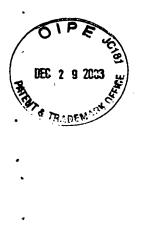


FIG. 16





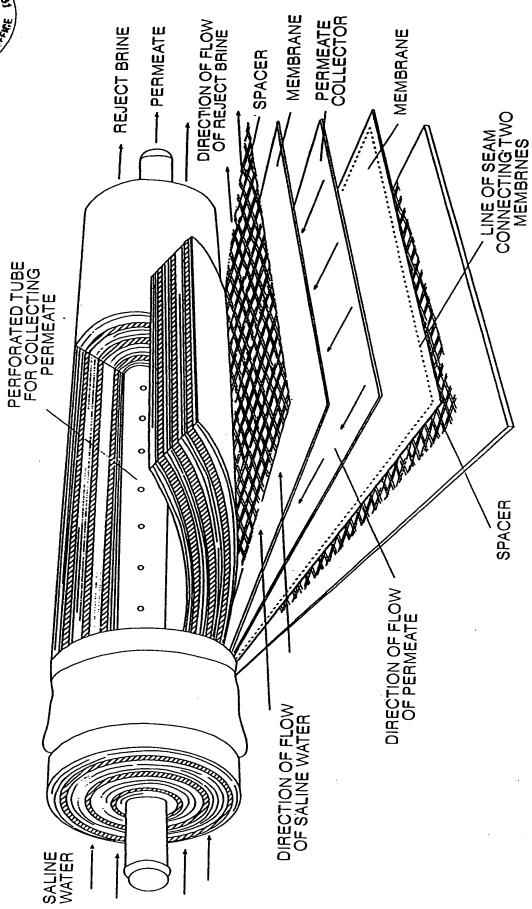


FIG. 18



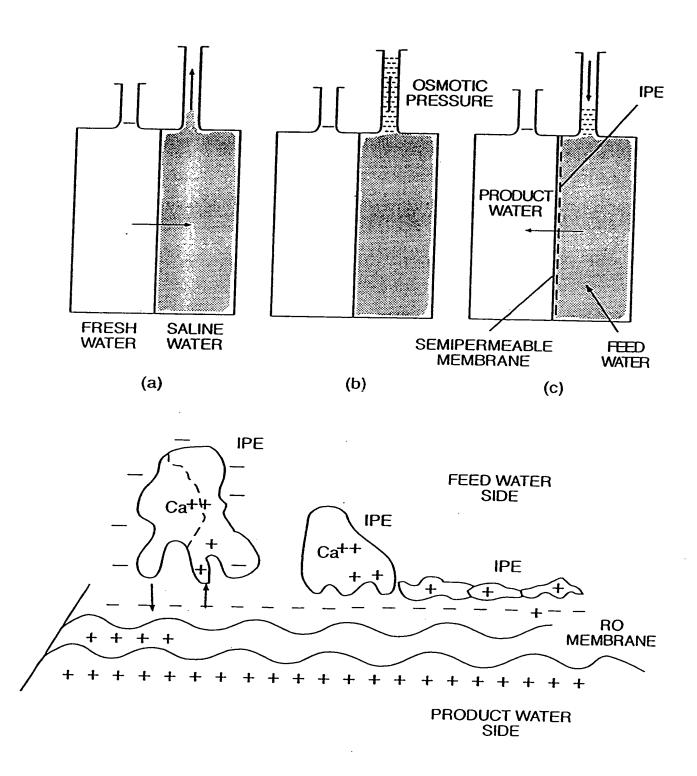


FIG. 19



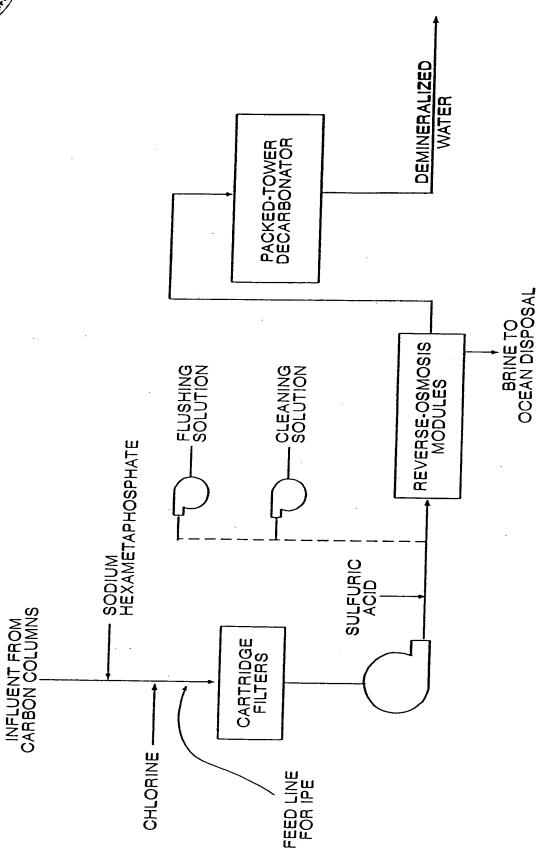


FIG. 20